

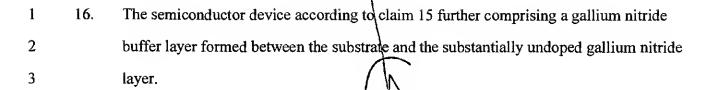
- 2. The nitride semiconductor light emitting device according to claim 1, wherein said n-type contact layer is GaN doped with Si as an n-type impurity, and said first nitride semiconductor joined to the first surface of said n-type contact layer is undoped GaN or AlGaN while said second nitride semiconductor joined to the second surface of said n-type contact layer is one of undoped GaN, AlGan and InGaN.
- 3. The nitride semiconductor light emitting device according to claim 2, wherein said n-type contact layer has a carrier concentration of 3X10 % cm³ or more.
- 4. The nitride semiconductor light emitting device according to claim 2, wherein said n-type contact layer has a resistivity of 8X10⁻³Ωcm or less.
- The nitride semiconductor light emitting device according to claim 3, wherein said n-type
 contact layer has a resistivity of 8X10⁻³Ωcm or less.
- The nitride semiconductor light emitting device according to claim 1, wherein said n-type contact layer of the three-layer structure is formed on a buffer layer formed on a sapphire substrate.

- 7. A nitride semiconductor light emitting device which comprises at least a substrate, an ntype contact layer for forming an n-electrode, an active layer where electrons and holes
 are recombined and a p-type contact layer for forming a p-electrode, each layer being
 made of nitride semiconductor, wherein said n-type contact layer comprises a superlattice layer which comprises a laminate layer of at least a nitride semiconductor layer
 doped with an n-type impurity and a nitride semiconductor undoped with an n-type
 impurity.
 - 8. The nitride semiconductor light emitting device according to claim 7 wherein said n-type contact layer comprises super-lattice layer of combination of nitride layers selected from the group consisting of GaN/GaN, InGaN/GaN, AlGaN/GaN and InGaN/AlGaN, at least either one of which is doped with Si.
 - 9. The nitride semiconductor light emitting device according to claim 8, wherein said n-type contact layer has a carrier concentration of 3X10¹⁸/c,³ or more.
 - 10. The nitride semiconductor light emitting a device according to claim 8, wherein said n-type contact layer has a resistivity of 8X10⁻³Ωcm or less.
- 1 11. The nitride semiconductor light emitting a device according to claim 9, wherein said n type contact layer has a resistivity of 8X10⁻³Ωcm or less.
 - 12. The nitride semiconductor emitting device according to claim 7, wherein said n-type contact layer comprises a nitride semiconductor super-lattice doped with an n-type impurity and has a first surface and a second surface, on which a first and a second layer of undoped nitride semiconductor or nitride semiconductor doped with a n-type impurity less than that of said super super-lattice are formed respectively to make a three-layer

laminated structure.

- The nitride semiconductor emitting device according to claim 8, wherein said n-type contact layer is formed on an undoped GaN layer formed on a buffer layer which is formed on a sapphire substrate, further nitride semiconductor layer comprising said active layer is formed through GaN undoped with n-impurity on said n-type contact layer.
 - 14. A nitride semiconductor light emitting device which comprises at least a substrate, an ntype contact layer for forming an n-electrode, an active layer here electrons and holes are
 recombined and a p-type contact layer for forming a p-electrode, each layer being made of
 nitride semiconductor, wherein said n-type contact layer of GaN comprises a nitride
 semiconductor doped with Si as an n-type impurity and ha s first surface and a second
 surface, on which a first and a second nitride semiconductors are formed respectively, at
 least one of the first and second nitride semiconductors is doped with Si in an amount of
 less than that of said n-type contact layer, and wherein said first nitride semiconductor
 joined to the first surface of said contact layer is of GaN or AlGaN while the second
 nitride semiconductor joined to the second surface of said contact layer is of GaN, AlGaN
 or InGaN.
 - 15. A semiconductor device comprising:
 - a. a substrate;
 - b. a substantially undoped gallium nitride layer formed over the substrate;
 - c. a doped gallium nitride layer formed on the substantially undoped gallium nitride layer; and
 - d. a layer of a gallium nitride semiconductor formed on the doped gallium nitride layer having a doping concentration lower than that of the doped gallium nitride layer.

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17. The semiconductor device according to claim 15 wherein the layer of a gallium nitride semiconductor formed on the doped gallium nitride layer is substantially undoped.

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